CLAIMS

~~1. A linear inductive transducer (T) including~~

- electric windings (1-4) with
  - a primary winding (1), and
  - a pair of secondary windings (2,4),
- a magnetic core (8), for performing linear displacements relative to the electric windings,
- a pair of input terminals (5,6) electrically connected to said primary winding (1) and adapted for being electrically connected to a power supply unit (C,11,13),
- at least an output terminal (7) electrically connected to said electric windings (1-4),

the transducer (T) being adapted for providing, through the output terminal (7), an electric signal (Vo) indicative of the mutual position between said electric windings (1-4) and said magnetic core (8),

characterized in that the electric windings include a second primary winding (3) between said primary winding (1) and an input terminal of said pair (5,6), the primary windings (1,3) being electrically connected to each other and to said pair of secondary windings (2,4), said electric signal (Vo) including a first (Vs) and a second (Vs') component, indicative of the mutual position between the magnetic core (8) and said primary windings (1,3) and said secondary windings (2,4), respectively.

2. The transducer according to claim 1, wherein the primary winding (1) and the second primary winding (3) are mutually connected in series at a connection point (9), the secondary windings (2,4) being electrically connected to said connection point (9).

3. The transducer according to claim 2, wherein each of said primary winding (1) and second primary winding (3) provides a signal (V1,V3) that is variable as the mutual ~~position between said primary winding (1) or second primary~~

winding (3) and said magnetic core (8) varies, the first component (Vs) of said electric signal (Vo) being proportional to the difference between the signals (V1,V3) provided by the primary windings (1,3).

4. The transducer according to claim 3, wherein the secondary windings (2,4) are mutually connected in phase opposition.

5. The transducer according to claim 4, wherein each of said secondary windings (2,4) provides an induced signal (V2,V4) that is variable as the mutual position between said electric windings (1-4) and said magnetic core (8) varies, the second component (Vs') of the electric signal (Vo) being proportional to the difference between said induced signals (V2,V4).

6. The transducer according to one of the preceding claims, wherein said primary winding (1) and said second primary winding (3) have the same number (N1) of turns, and each of said secondary windings (2,4) has the same number (N2) of turns as the other.

7. The transducer according to one of the preceding claims, wherein said power supply unit includes two sinusoidal voltage generators (11,13) connected in phase opposition.

8. A linear inductive transducer (T') including

- electric windings (21-24) with
  - a primary winding (21), and
  - a pair of secondary windings (22,24),
- a magnetic core (28) for performing linear displacements relative to the electric windings,
- a pair of input terminals (32,34) electrically connected to said primary winding (21) and adapted for being electrically connected to a power supply unit

~~(11,13;11'), and~~

- output terminals (31,33,35) electrically connected to said electric windings (21-24),

the transducer (T') being adapted for providing, at at least one of said output terminals (31,33,35), an electric signal (Vo;Vo';Vo'') indicative of the mutual position between said electric windings (21-24) and said magnetic core (8),

characterized in that the electric windings include a second primary winding (23) between said primary winding (21) and an input terminal of said pair (32,34), the primary (21) and the second primary (23) windings being mutually connected in series at a connection point (29),

said output terminals include three output terminals (31,33,35) electrically connected to the ends of said pair of secondary windings (22,24) and to said connection point (29) between the primary windings (21,23),

the transducer (T') being adapted for selectively providing said electric signal (Vo;Vo';Vo'') at one (31;33) or a pair (31,35) of said three output terminals (31,33,35).

9. The transducer according to claim 8, wherein the secondary windings (22,24) are mutually connected in phase opposition.

10. The transducer according to claim 8 or claim 9, wherein two (33,35) of said three output terminals (31,33,35) are adapted for being electrically connected to one another for achieving an electric connection between the primary windings (21,23) and the secondary windings (22,24), the transducer (T') being adapted for providing said electric signal (Vo) at the other (31) of said three output terminals (31,33,35).

11. The transducer according to claim 10, wherein said electric signal (Vo) includes a first (Vs) and a second (Vs') component, indicative of the mutual position between

~~the magnetic core (28) and the primary windings (21,23)~~ and, respectively, the secondary windings (22,24).

12. The transducer according to claim 8 or claim 9, wherein two (31,35) of said three output terminals (31,33,35) are adapted for being insulated, the transducer (T') being adapted for providing said electric signal (Vo') at the other (33) of said three output terminals (31,33,35).

13. The transducer according to one of claims from 8 to 12, wherein said power supply unit includes two sinusoidal voltage generators (11,13) connected in phase opposition.

14. The transducer according to claim 8 or claim 9, wherein the output terminal (33) connected to the connection point (29) is adapted for being insulated, the transducer (T') being adapted for providing said electric signal (Vo'') at the two output terminals (31,35) at the ends of said pair of secondary windings (22,24).

CLAIMS

1. A linear inductive transducer (**T**) including
- electric windings (**1-4**) with
  - a primary winding (**1**), and
  - a pair of mutually connected secondary windings (**2,4**),
- a magnetic core (**8**), for performing linear displacements relative to the electric windings,
- a pair of input terminals (**5,6**) electrically connected to said primary winding (**1**) and adapted for being electrically connected to a power supply unit (**C,11,13**),
- at least an output terminal (**7**) electrically connected to said electric windings (**1-4**),

the transducer (**T**) being adapted for providing, through the output terminal (**7**), an electric signal (**Vo**) indicative of the mutual position between said electric windings (**1-4**) and said magnetic core (**8**),
characterized in that the electric windings include a second primary winding (**3**) between said primary winding (**1**) and an input terminal of said pair (**5,6**), the primary windings (**1,3**) being electrically connected to each other and to said pair of secondary windings (**2,4**), said electric signal (**Vo**) including a first (**Vs**) and a second (**Vs'**) component, indicative of the mutual position between said magnetic core (**8**) and said primary windings (**1,3**) and said secondary windings (**2,4**), respectively.

2. The transducer according to claim 1, wherein the primary winding (**1**) and the second primary winding (**3**) are mutually connected in series at a connection point (**9**), the secondary windings (**2,4**) being electrically connected to said connection point (**9**).

3. The transducer according to claim 2, wherein each of said primary winding (**1**) and second primary winding (**3**) provides a signal (**V1,V3**) that is variable as the mutual position between said primary winding (1) or second primary

winding (**3**) and said magnetic core (**8**) varies, the first component (**Vs**) of said electric signal (**Vo**) being proportional to the difference between the signals (**V1,V3**) provided by the primary windings (**1,3**).

4. The transducer according to claim 3, wherein the secondary windings (**2,4**) are mutually connected in phase opposition.

5. The transducer according to claim 4, wherein each of said secondary windings (**2,4**) provides an induced signal (**V2,V4**) that is variable as the mutual position between said electric windings (**1-4**) and said magnetic core (**8**) varies, the second component (**Vs'**) of the electric signal (**Vo**) being proportional to the difference between said induced signals (**V2,V4**).

6. The transducer according to one of the preceding claims, wherein said primary winding (**1**) and said second primary winding (**3**) have the same number (**N1**) of turns, and each of said secondary windings (**2,4**) has the same number (**N2**) of turns as the other.

7. The transducer according to one of the preceding claims, wherein said power supply unit includes two sinusoidal voltage generators (**11,13**) connected in phase opposition.

8. A linear inductive transducer (**T'**) including

- electric windings (**21-24**) with
  - a primary winding (**21**), and
  - a pair of mutually connected secondary windings (**22,24**),
- a magnetic core (**28**) for performing linear displacements relative to the electric windings,
- a pair of input terminals (**32,34**) electrically connected to said primary winding (**21**) and adapted for being

electrically connected to a power supply unit